WHAT IS CLAIMED IS:

1. A lithographic projection apparatus comprising:

a radiation system configured to provide a projection beam of radiation;

a support structure configured to support programmable patterning structure, the programmable patterning structure being configurable to pattern the projection beam according to a desired pattern;

a substrate table configured to hold a substrate;

a projection system configured to project the patterned beam onto a target portion of the substrate,

wherein the programmable patterning structure includes a plurality of reflective elements, each reflective element including upper and lower distributed Bragg reflectors having a separation relation selectable from among at least a first separation relation and a second separation relation;

wherein, when the first separation relation is selected, a reflectivity of the reflective element at a wavelength of the projection beam is relatively low, and when the second separation relation is selected, a reflectivity of the reflective element at a wavelength of the projection beam is relatively high.

2. The lithographic projection apparatus according to claim 1, wherein, when the first separation relation is selected, the upper and lower distributed Bragg reflectors are relatively positioned such that reflections of the projection beam interfere destructively, and

wherein, when the second separation relation is selected, the upper and lower distributed Bragg reflectors are relatively positioned such that reflections of the projection beam interfere constructively.

3. The lithographic projection apparatus according to claim 1, wherein at least two of the plurality of reflective elements have a common upper distributed Bragg reflector.

4. The lithographic projection apparatus according to claim 1, wherein a difference in the distance between a reflecting layer of the upper distributed Bragg reflector and a reflecting layer of the lower distributed Bragg reflector between the first and second separation relations is substantially equal to one-quarter of a wavelength of the projection beam.

5. The lithographic projection apparatus according to claim 1, wherein the projection beam of radiation is extreme ultraviolet radiation.

6. The lithographic projection apparatus according to claim 1, said apparatus further comprising an actuator configured to set a separation relation of at least one of the reflective elements to one of the first separation relation, the second separation relation, and at least one separation relation between the first and second separation relations.

7. The lithographic projection apparatus according to claim 6, wherein the actuator includes a piezoelectric element.

8. The lithographic projection apparatus according to claim 1, said apparatus further including a piezoelectric element that is common to a set including at least two of the reflective elements, and

wherein each reflective element of the set includes an electrode configured to apply a signal to cause a piezoelectric effect in the piezoelectric element that is substantially local to the reflective element.

9. The lithographic projection apparatus according to claim 1, wherein at least one of the plurality of reflective elements is configured to use an electrostatic force to adjust a separation relation between the upper and lower distributed Bragg reflectors.

10. A lithographic projection apparatus comprising:

a radiation system configured to provide a projection beam of radiation;

a support structure configured to support programmable patterning structure, the programmable patterning structure being configured to pattern the projection beam according to a desired pattern;

a substrate table configured to hold a substrate;

a projection system configured to project the patterned beam onto a target portion of the substrate,

wherein the programmable patterning structure includes a plurality of reflective elements, each reflective element including a distributed Bragg reflector, and

wherein a position of each of a set of the plurality of reflective elements is selectably adjustable to create a phase difference between a reflection from the reflective element and a reflection from another of the plurality of reflective elements.

11. The lithographic projection apparatus according to claim 10, wherein at least two among the set of reflective elements have a common distributed Bragg reflector, and

wherein the common distributed Bragg reflector is configured to be locally distortable such that a selected position of the common distributed Bragg reflector differs between the at least two reflective elements.

12. A device manufacturing method comprising the steps of:

providing a substrate that is at least partially covered by a layer of radiation-sensitive material;

providing a projection beam of radiation using a radiation system;

using a programmable patterning structure to endow the projection beam with a desired pattern in its cross-section; and

projecting the patterned beam of radiation onto a target portion of the layer of radiation-sensitive material,

wherein the programmable patterning structure includes a plurality of reflective elements, each reflective element including upper and lower distributed Bragg reflectors having a separation relation selectable from among at least a first separation relation and a second separation relation;

wherein, when the first separation relation is selected, a reflectivity of the reflective element at a wavelength of the projection beam is relatively low, and when the second separation relation is selected, a reflectivity of the reflective element at a wavelength of the projection beam is relatively high.

13. The device manufacturing method according to claim 12, wherein, when the first separation relation is selected, the upper and lower distributed Bragg reflectors are relatively positioned such that reflections of the projection beam interfere destructively, and

wherein, when the second separation relation is selected, the upper and lower distributed Bragg reflectors are relatively positioned such that reflections of the projection beam interfere constructively.

14. The device manufacturing method according to claim 12, wherein at least two of the plurality of reflective elements have a common upper distributed Bragg reflector.

15. The device manufacturing method according to claim 12, wherein a difference in the distance between a reflecting layer of the upper distributed Bragg reflector and a reflecting layer of the lower distributed Bragg reflector between the first and second separation relations is substantially equal to one-quarter of a wavelength of the projection beam.

16. The device manufacturing method according to claim 12, wherein the projection beam of radiation is extreme ultraviolet radiation.

17. The device manufacturing method according to claim 12, wherein said using programmable patterning structure includes using an actuator to set a separation relation of at least one of the reflective elements to one of the first separation relation, the second separation relation, and at least one separation relation between the first and second separation relations.

18. The device manufacturing method according to claim 17, wherein the actuator includes a piezoelectric element.

19. The device manufacturing method according to claim 12, wherein said using programmable patterning structure includes using a piezoelectric element that is common to a set including at least two of the reflective elements, and

wherein each reflective element of the set includes an electrode configured to apply a signal to cause a piezoelectric effect in the piezoelectric element that is substantially local to the reflective element.

20. The device manufacturing method according to claim 12, wherein said using programmable patterning structure includes using an electrostatic force to adjust a separation relation between the upper and lower distributed Bragg reflectors of at least one of the plurality of reflective elements.